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ABSTRACT

The purpose of this paper is to summarize the development of the cloze procedure, to introduce the most recent work done, and to project the implications for further research in the cloze procedure. The cloze procedure was derived from the Gestalt theory of closure whereby a subject has a tendency to fill in the gaps of an uncompleted visual or thought unit. This method was developed by Wilson Taylor at the University of Illinois in 1953. The major areas of research on the cloze procedure include the development of the cloze test to determine readability levels; the use of the cloze test for diagnostic applications; the use of the cloze procedure as a teaching tool; and the recent development by William Page of the use of the post oral reading cloze test as an objective method of observing comprehension. (MKM)

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THE CLOZE PROCEDURE: LATEST RESEARCH AND USES

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Cloze Procedure

The cloze procedure derived from the Gestalt theory of closure whereby a subject has a tendency to fill in the gaps of an uncompleted visual or thought unit. This method was developed by Wilson Taylor at the University of Illinois in 1953 (44). In the twenty-six years following Taylor's first comprehensive statement on the cloze procedure, considerable research has been conducted as to its various uses. The research has been so extensive that numerous reviews have been written including those of Rankin in 1965 (37), Weaver in 1965 (49), Bormuth in 1967 (9), Bickley in 1970 (5), Fram in 1972 (19), Robinson in 1972 (40), and Riley in 1973 (39). In fact, a review of ERIC literature at this time shows that well over 300 articles have been written. There is still much to be done, however, to close the gap between these research findings and their application in the classroom. The classroom teacher needs to understand the value and the flexibility of the tool in order to effectively implement the cloze procedure in the classroom.

The major areas of research in the use of the cloze procedure include (1) the development of the cloze test to determine readability levels (2) the use of the cloze test for diagnostic applications (3) the use of the cloze procedure as a teaching tool and (4) the use of the post oral reading cloze test as an objective method of observing comprehension. While it is impossible to adequately review all of the work that has been done in these areas, it is the purpose of this paper to summarize the development of the cloze procedure, to introduce the most recent work done, and to project the implications for further research in the cloze procedure.

The Cloze Procedure as a Measurement of Readability Levels

To date, most research has been in the area of the proper construction of a cloze test and in the interpretation of student scores in order to determine reading levels. To summarize the development concerning the proper construction of a sufficiently reliable (.85) cloze test, John Bormuth found in 1965 (7) and in 1975 (12) that the chosen selection should be approximately 250-300 words in length. The material should be edited so that understanding is not harmed, and the student should not have previously read the selection. It should have a minimum of redundancy in the deleted items, with more lexical deletions than structural deletions. Every fifth word should be deleted, beginning anywhere in the first sentence except the first word. There should be a title. The blanks should be of uniform length (fifteen typewritten spaces) and, if possible, the test should be black print on white paper.

Students should be given a practice paragraph before taking the test, and they should be instructed as to how the blanks should be filled. Most blanks will be filled with ordinary words, but a few may be numbers, contractions, abbreviations, or parts of hyphenated words.

In scoring, only the exact word should be accepted as correct. A percentage score is derived from the number of correct responses divided by the total number of deleted words. In interpreting scores using Betts criteria, Bormuth in 1968 (10) and in 1969 (11) found 37% correct to be equal to the frustrational level, between 44 and 57% as the instructional level, and over 57% as the independent level. In 1972 Bortnick and Lopardo (13) found 65% and above to be too easy as the student would be gaining little or no new information.

Further research by Bormuth in 1975 (12) has shown a new interpretation of cloze test scores. In his article, "Literacy in the Classroom," Bormuth questions the Betts criteria because there has never been evidence or any description for the selection of these particular scores (75% to 90% correct, for example, is necessary for supervised instruction). Bormuth instead suggests four measures of the suitability of a book. They are "(1) how much information the average person gains from the text, (2) how willing he or she is to read it, (3) how novel the content is to the person, and (4) how rapidly he or she is able to read it." These four measures were added together in a study to determine criteria scores for cloze tests when they were viewed as indices for the proper use of textbook material, reference books, or voluntary books. Bormuth's new criteria scores for the cloze test are based on research with a total of 1600 students including 160 at each of the grade levels from third through twelfth. These criteria show a fluxuation as students get older, especially considering the willingness of a student to read different types of materials. Bormuth's criteria scores are as follows:

Use to be Made of the Materials	Grade Level of the Student									
	3	4	5	6	7	8	9	10	11	12
Textbook	59	58	57	56	55	53	52	50	50	49
Reference	55	53	52	51	49	48	47	45	45	44
Voluntary	90	62	54	50	49	46	44	40	34	34

The cloze test has been found to be similar to conventional tests in several ways. In measuring a student's comprehension ability Bormuth

found in 1968 (10) that the correlation between cloze and conventional test scores was between .73 and .84 at the elementary level. There was a .92 correlation between cloze tests and passages measured by multiple choice tests.

Several studies have been conducted where scores on a particular reading test were compared to cloze percentages. This writer did a study comparing Robert McCracken's Standard Reading Inventory, Form A, with a cloze test using the stories from Form B. Using 38% correct for the instructional level, a .81 correlation was found (30). In 1974, Jones and Pikulski (24) compared an informal reading inventory with a cloze test utilizing the same passage with sixth grade students. They also found the cloze test effectively identified the instructional level as measured by the informal reading inventory.

There are many advantages in using the cloze procedure over conventional tests for determining instructional levels, including the relative low cost of the test and the ease of test administration and test interpretation. The most important advantage, however, is the direct use of the instructional material by the student.

Diagnostic Applications of the Cloze Procedure

Research has recently been done on the diagnostic applications of the cloze test. The test can be used as an informal measure of a student's silent reading comprehension strategies if it is used with students over the third grade reading level who do not have severe word-recognition disabilities.

In 1973, Bortnick and Lopardo (13) used the cloze test to provide information on a student's use of the syntactic and semantic constraints

of language. The student was encouraged to read the passage in its entirety before taking the test. Errors were examined for the purpose of adjusting the score and for making recommendations for remediation. Through comparing expected responses with observed responses, the teacher could identify a student's particular instructional needs by determining whether or not the meaning of the passage was changed and if the student needed instruction in using psycholinguistic cues.

In 1973, Theobald (44) expanded this study by analyzing the use readers made of semantic and syntactic cuing systems through the techniques outlined in the Reading Miscue Inventory Manual (Y. Goodman, and C. Burke, 1972). This use of the cloze technique is valuable in that the cloze test is the only development of a silent reading task in which completion requires the reader to demonstrate his use of cuing systems. It is clear that more research in this area will provide the teacher with a useful tool for informal diagnosis.

Instructional Uses of the Cloze Procedure

The uses of the cloze technique for instructional purposes are numerous and varied. The completed test can be most effectively used in the classroom because students can discuss and give reasons for their responses. Similarly, students can work together in initially filling out the test and learn with their peers the use of semantic and syntactic strategies in determining correct responses. Further, a cloze test over different content area textbooks can help students focus on differences between language structures and styles.

Selected deletions on a passage can be helpful in teaching certain concepts. A cloze passage constructed with lexical deletions is helpful

in teaching concepts of parts of speech. This writer found the use of noun and verb deletions over the same passage helpful in teaching remedial high school students the concept of noun and verb in a concrete manner. A cloze passage systematically deleting the first or last word in each sentence brings focus on the syntactic constraints of language.

Modified deletions include the deletions of structural parts of words (prefix, root, or suffix) to teach word analysis, and certain phoneme-grapheme correspondences (clusters, vowel sounds, etc.) to teach word attack strategies.

Another instructional use of the cloze procedure is the LEA-Cloze, recently developed in 1975 by Lopardo (29) and Balyeat and Norman (3). They found that a cloze test constructed from language experience stories provided the student with a comprehension assessment using his own language patterns. Balyeat and Norman (3) searched for an indicator of comprehension which could "(1) provide an indication of reading achievement for initial reading groups at the beginning of the year, (2) be administered to an entire class at one setting, (3) be easily scored and interpreted by teachers, and (4) relate to the language and experience of rural mountain children." They developed the LEA-Cloze and found it of value in predicting and indicating reading levels of disadvantaged children. Lopardo used the language experience stories to strategically select certain troublesome word groups (ex. structural words) for a student's instructional needs.

Instructional applications have been used to compare traditional reading instruction with teaching with the cloze. In 1975 Gove (22) used the LEA-Cloze (noun and verb) and the modified deletion cloze as

instructional aids to supplement the basal reader program for her first grade classroom. Students were encouraged to "see how language works" by first listening to cloze stories and supplying words to fit the blanks. As their ability increased, they wrote words in the blanks. While more field testing is needed to investigate the systematic use of the cloze procedure in the first grade classroom, it has been found to be a valuable means of focusing student attention on the use of semantic and syntactic language clues.

Anotner study was conducted in 1975 with primary grade students by Paradis and Bayne (32). (Children having severe difficulty in learning to read were not included.) Test results indicated that the cloze treatment had equal results with the subjects when compared with treatment combining self-selection reading and phonetic reinforcement activities.

In 1975, Pessah (33) sought to study the effectiveness of the cloze procedure when used as part of the remedial reading instruction in community college classes. His findings showed that reading achievement scores of community college students improved when the cloze procedure was used as part of the remedial reading instruction. He also concluded that no one teaching method emerged as superior to others when used in conjunction with the cloze procedure.

The Use of the Post Oral Reading Cloze Test to Assess Comprehension

The use of the cloze procedure in determining a student's ability to handle reading material has been well established. A new use for the procedure, recently developed in 1976 by William Page (32), is the post oral reading cloze test. The post oral reading test is different in

that it is administered immediately after the oral reading of a passage by a student. Using sixty subjects from grades two through six, Page found an average gain of 10.45 percentage points from prior oral reading. He concluded, "Because conventional cloze tests predict literal comprehension as measured by multiple choice comprehension (Bormuth 1969), the post oral reading cloze test represents a valuable link between oral reading performance and comprehension performance." In 1975, Gainer (21) duplicated Page's study with second and third grade students. Her study showed an average gain in comprehension of 22.34 percentage points.

Page further studied the relationship between oral reading miscues and the ability to understand. (33) He used the post oral reading cloze test and a comprehension test on the same passage to determine whether semantically and syntactically acceptable or unacceptable oral reading errors predict comprehension scores. He found that whereas semantically and syntactically acceptable oral reading errors do not predict comprehension performance, unacceptable reading errors do. The post oral reading cloze test is useful in distinguishing oral reading miscues that relate to literal comprehension performance from those miscues that do not.

In discussing the difficulty of writing objective measurements of comprehension at the 1975 annual meeting of the American Educational Research Association, Salter mentioned the cloze technique as a viable alternative to conventional standardized testing. (43)

The cloze test is an important development in assessing comprehension in that it is an objective testing tool that is free from the teacher bias found in conventional test question construction. It is less

complicated than other test construction alternatives such as systematizing the writing of multiple choice items for literal comprehension by specifying the types of questions to be asked and establishing rules for writing them. Page's post oral reading cloze test is a valuable step in the search for objective tools for measuring reading comprehension.

This last use, the use of the post oral reading cloze test for testing comprehension and for obtaining an insight into the reading process of a subject, is an important new extension of cloze research. The post oral reading cloze test and the cloze test can be an integral part of a testing program. They are especially valuable in that they can be constructed and interpreted with relative ease.

The cloze procedure has been widely researched in its uses to determine readability, to diagnose student responses for remediation, to provide teaching techniques, and to objectively measure comprehension. Teachers need to become aware of the research that has been done in these four areas in order to see the advantage of using the cloze procedure on a regular basis in the classroom.

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